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OBJECTIVE: To estimate prevalence of Urinary Incontinence (UI) in the Portuguese population. To determine the costs of treatment (including incontinent pad usage) with Tolterodine for patients suffering from chronic UI.

METHODS: Data from the National Health Survey performed in 1995–96, involving a representative sample of 49718 people across mainland Portugal, was analyzed to determine age, sex-specific and age-standardized prevalence rates of UI. The average consumption of pads by incontinent patients was estimated from the information provided by the Centro Regional de Saúde from Madeira Island, a region where pads are reimbursed.

RESULTS: The global prevalence of urinary incontinence in Portugal was of 4,3%, being 2,6% in males and 5,8% in females. Age and sex adjusted prevalence rates were of 1,9% in males while 4,4% in females. Age and sex specific prevalence rates increase with age from 15 years onwards in both sexes, being higher in females across all age groups. Above 65 years of age 10% of men and 12% of women suffer from urinary incontinence. Of these, 68,8% are likely to suffer from chronic urinary incontinence. This is the estimated burden of the disease in the general Portuguese population. Urinary incontinent chronic patients use on average 4 pads per 24 hours, normally using 3 pads during the day and 1 pad at night. Comparing the average pad costs per day with using Tolterodine, the difference is remarkable (648\$00 PTE versus 334\$60 PTE). The economic impact of such use would reduce the health expenditure in UI patients significantly.

CONCLUSION: The prevalence of UI in Portugal is within the limits of what is mentioned in other community-based studies. The average daily costs of treatment with Tolterodine are lower when compared with pad usage.

SR2

A PHARMACO-ECONOMIC CASE STUDY IN ANAESTHESIA, INCLUDING A RECENT RE-ANALYSIS USING BOOTSTRAP TECHNIQUES

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OBJECTIVES: To apply bootstrap techniques to derive confidence intervals (CIs) for cost differences between two anaesthetic regimes, and to compare with standard parametric methods for deriving CIs.

METHODS: In a cardiac surgery clinical trial, patients were randomized to one of two anaesthetic regimes, either propofol or midazolam, for the induction and maintenance of anaesthesia, and sedation post-surgery in ICU. A cost comparison of these two regimes was published in 1996, with all drug usage and ICU nursing time costs. Parametric methods were used to construct 95% CIs for the difference between propofol and midazolam. Untransformed parametric analysis of cost data often fails because of distributional skew-

ness. Therefore, log-transformed analysis was undertaken to overcome the skewness problem. More recently, log-transformation has become a discredited strategy because health-care decision-makers focus on total budgets—for instance, the total annual budget available to provide surgery at a particular centre. The only estimator directly linked to this total cost is the arithmetic mean—therefore any analysis based upon geometric means, arising from log-transformation, is inappropriate. Other authors have therefore recommended bootstrap techniques to produce CIs for cost differences on an untransformed scale. This approach is not invalidated by distributional skewness.

RESULTS: With 37 propofol and 33 midazolam patients, a comparison of drug plus nursing costs showed an advantage per subject for propofol of £43.23 (95% CI: −£3.21 to £89.67). An untransformed two-sample t-test proved inappropriate, because the necessary distributional assumptions were not satisfied. Bootstrap CIs for the cost difference were then constructed using four different bootstrap techniques. All bootstrap CIs showed a striking similarity to the untransformed estimates above, demonstrating the robustness of the t-test and conventional parametric methods, despite distributional skewness.

CONCLUSIONS: Both untransformed and bootstrap estimates should be presented—hopefully, the two methods will be in agreement and provide mutually supportive evidence.

SR3

DEVELOPMENT AND VALIDATION OF THE QUALITY OF LIFE WITH MIGRAINE (QOLWM): A BRIEF MIGRAINE SURVEY

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OBJECTIVE: To develop and validate a brief survey of migraine-related quality of life issues. Unlike other instruments that define the impact of acute treatment, the Quality of Life with Migraine (QOLWM) questionnaire was designed to assess the chronic impact of migraine.

METHODS: Major issues related to living with chronic, frequent migraine headaches were condensed into seven topics. Each item was structured as a question about frequency and a question about bothersomeness. Item scores were the products of frequency and bothersomeness. The total score was the sum of the seven item scores. People with migraine who voluntarily responded to a headache survey also completed the QOLWM and the Headache Disability Index (HDI).

RESULTS: The QOLWM was completed in full by 994 adults (81% women) with mean total score 77.98 ± 40.49 (range 7–175). There were no floor or ceiling effects. Internal consistency reliability (Cronbach's alpha) of 0.93 was excellent, with item-scale correlations of 0.59–0.83. The eigenvalue of the single factor was 4.78, with item loadings

of 0.68–0.88. Scores correlated significantly with frequency of migraines in the past month and use of prophylactic medications daily (both $p < 0.0001$). Correlation of the QOLWM and HDI total scores for the 728 people who completed both questionnaires was 0.73. Item correlations with the HDI total score were 0.47–0.67, demonstrating external criterion validity. Additional studies are ongoing to assess reproducibility and responsiveness.

CONCLUSIONS: These data demonstrate the psychometric properties of the QOLWM. The brief questionnaire may be useful as a screening tool for clinicians to evaluate the impact of migraine on individuals. The two-dimensional approach to patient-reported quality of life allows individuals to weight the impact of both frequency and bothersomeness of chronic migraines on multiple aspects of daily life.

SR4

LONGITUDINAL ASSESSMENT OF ASTHMA AND WORK OUTCOMES

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OBJECTIVE: Describe relationships between changes in work outcomes (WO) and changes in asthma severity over a one-year period.

METHODS: This longitudinal study surveyed adults enrolled in a managed care organization using identical mailed surveys. 106 respondents completed both the 1997 and 1998 questionnaires and reported working outside the home. Self-reported WO included missed work days due to asthma and work performance (WP) from the Functional Status Questionnaire, a 6-item scale using a 4-point Likert scale, transformed to a 100 point scale. A 4-week time reference was used. Perceived severity was determined by asking patients their perceived severity on a 5-point scale from very mild to very severe; evaluated severity was based on reported symptoms matched to national guidelines. Respondents were grouped by change in asthma severity: improvement; no change; or decline of at least one severity category. Analysis included descriptive statistics, paired Student's *t*-test, and McNemer's test.

RESULTS: Initially, respondent's mean age was 44.4 (± 10.9) years; 72 (68.6%) were female; 76.7% had an annual family income of $\geq \$40,000$; 96.2% were Caucasian; and 76.4% had some college education or more; 42.9% perceived their asthma severity as very mild or mild, 38.1% moderate, and 19.1% as severe or very severe. Based on symptoms, 32.4% were classified as intermittent mild, 28.6% mild persistent, 36.2% moderate, and 2.9% severe asthma. WP scores changed in the expected direction based on changes in asthma severity: no change in perceived severity ($n = 58$) had no significant change in WP score (91.3 ± 13.0 versus 92.9 ± 12.4 , $p = 0.52$); improvement in perceived severity (less severe, $n = 17$) had improved WP scores (91.8 ± 7.9 versus 94.4 ± 9.4 , $p = 0.30$); and worsening of perceived severity ($n = 26$) had a decline in WP score (94.4 ± 8 versus 91.3 ± 10.9 , $p = 0.07$). WP score trends were similar based on evaluated se-

verity. There were no significant differences in changes in the number of respondents who reported missing work.

CONCLUSIONS: Changes in WP are related to asthma severity. The measure of missed days work is less consistently related.

SR5

MEDICAL EVENTS AND RESOURCE UTILISATION IN CANCER PAIN PATIENTS TREATED WITH STRONG OPIOIDS: AN ANALYSIS OF THE UK-GPRD DATABASE

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OBJECTIVES: To study the incidence of medical events and resource utilisation in patients treated for severe cancer pain with strong opioids with the general practitioner (GP).

METHODS: We analyzed data on 2,323 cancer patients who switched from a weak to a strong opioid. Patients started either on TTS Fentanyl (TTS: $N = 270$), Immediate Release Morphine (IR: $N = 1,909$) or Sustained Release Morphine (SR: $N = 144$). We compared the medical events during their pain treatment, the number of patients receiving concomitant medication and the number of GP visits. A descriptive analysis was performed as well as relative risks (RR) calculated, adjusting for relevant co-variables.

RESULTS: The groups were comparable for age (avg. 68 yrs). There were more female patients in the TTS group (61.5%) compared to 48.1% and 49.3% for IR and SR, respectively. Median duration of cancer prior to the start of strong opioids was 7.1 months for TTS, 6 for IR and 5.3 for SR. Mean duration of treatment: 68 days for TTS, 97 for IR and 92 for SR. No differences in concomitant illnesses were observed except for cancer types with significantly more GI and fewer lung cancers in the TTS group. Compared to TTS, patients on IR had more constipation (RR 1.49: 95% CI 1.14–1.94), more nausea and vomiting (RR 1.43: 95% CI 1.09–1.88) and more cardiac events (RR 1.95: 95% CI 1.15–3.29), while SR patients differed from TTS only with respect to cardiac events (RR 2.79: 95% CI 1.49–5.22). IR patients had also a higher rate of hospitalizations (RR 1.95: 95% CI 1.14–3.31) and GP visits (RR 1.21: 95% CI 0.98–1.49). Fewer TTS patients consumed additional pain medication, laxatives as well as antibiotics and CNS medication. **CONCLUSION:** This analysis of GP derived observational data indicate that TTS Fentanyl results in a lower consumption of medication and other health care resources compared to morphine treated cancer patients.

ECONOMIC & OUTCOMES STUDY RESULTS OF GASTROINTESTINAL DISORDERS

GI1

COST-EFFECTIVENESS OF THE COMBINATION OF MISOPROSTOL WITH DICLOFENAC IN THE TAYSIDE POPULATION